

## CLAIMS

1. A system for assisting the regeneration of depollution means (4) associated with oxidation catalyst-forming means (3) integrated in an exhaust line (2) of a motor vehicle diesel engine (1), and in which the engine (1) is associated with common manifold means (5) for feeding fuel to its cylinders, the system being adapted to implement, at constant torque, a strategy of regeneration by injecting fuel into the cylinders of the engine in at least one post-injection, the system being characterized in that it includes detection means (7, 8, 9) for detecting a stage in which the vehicle engine is idling and/or in which the accelerator pedal is being raised, and analysis means (6) for analyzing the activity state of the catalyst-forming means (3) in order to control the common fuel-feed manifold means (5) in order to regulate the quantity of fuel injected during the or each post-injection as a function of the activity state of the catalyst-forming means (3);
- in that the analysis means (6) for analyzing the activity state of the catalyst-forming means (3) are connected to temperature sensors (10, 11) upstream and downstream from the catalyst-forming means in order to determine an operating point thereof and including determination means (6) responsive to said operating point for determining the activity state of the catalyst-forming means; and
- in that the determination means (6) for determining the activity state of the catalyst-forming means (3) are adapted to compare the operating point of said means with two predetermined activity state transition curves (C1, C2) defining ranges for an inactive state, an active state, and an activity-confirmed state of the catalyst-forming means (3) and for confirming a state after a first predetermined period of time for confirming that the catalyst-forming means are in said state.

2. A system according to claim 1, characterized in that various hysteresis differences are used depending on the direction of transitions from one state of the catalyst-forming means (3) to another, in order to confirm the state.

3. A system according to claim 1 or claim 2, characterized in that the determination means (6) are adapted to maintain information that the catalyst-forming means (3) are in an inactive state during a second predetermined time period after the operating point of said means has crossed the corresponding inactive-to-active transition curve (C1).

4. A system according to claim 2 or claim 3, characterized in that the time periods and the hysteresis differences are calibratable.

5. A system according to any preceding claim, characterized in that, when the catalyst-forming means (3) are in an activity-confirmed state, the common manifold means (5) are adapted to inject a nominal quantity of fuel during the or each post-injection, when the catalyst-forming means (3) are in an active state, the common manifold means (5) are adapted to reduce the quantity of fuel injected during the or each post-injection by a multiplier factor, as a function of the difference between the operating point of said catalyst-forming means (3) and the corresponding transition curve between an active state and an inactive state (C1), and when the catalyst-forming means (3) are in an inactive state, the common manifold means (5) are adapted to limit the quantity of fuel injected during the or each post-injection to a predetermined minimum value.

6. A system according to claim 5, characterized in that the minimum value is equal to 0.

7. A system according to claim 5 or claim 6,  
characterized in that the common manifold feed means (5)  
are adapted to trigger a plurality of fuel post-  
5 injections, and in that the quantity of fuel injected  
during each post-injection while the catalyst-forming  
means (3) are in an active state is regulated  
independently from the quantity of the other post-  
injection.
- 10 8. A system according to any preceding claim,  
characterized in that the engine is associated with a  
turbocharger.
- 15 9. A system according to any preceding claim,  
characterized in that the depollution means (4) comprise  
a particle filter.
- 20 10. A system according to any preceding claim,  
characterized in that the depollution means (4) comprise  
a NOx trap.
- 25 11. A system according to any preceding claim,  
characterized in that the fuel includes an additive for  
being deposited together with the particles with which it  
is mixed on the depollution means (4) in order to  
facilitate regeneration thereof.
- 30 12. A system according to any one of claims 1 to 10,  
characterized in that the fuel includes a NOx trap  
forming additive.